THE WEATHER ELEMENTS.

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PRESSURE AND WINDS.

The atmospheric circulation during March, 1922, like the preceding month, was unusually active, and cyclones, having their origin mostly over the Southwest, moved in rapid succession over the central valleys and eastern districts.

Storms of this character gave important precipitation during the following periods: On the 1st and 2d, from eastern Texas, Oklahoma, and Kansas to the middle Atlantic coast, the falls being particularly heavy in portions of the Gulf States and over most drainage areas of the southern tributaries of the Ohio; from the 13th to 15th, when another low area moved from central Texas slightly northeastward to the middle Atlantic coast, and heavy rains again fell over much of the area covered by the storm first referred to, extending somewhat farther north, however, into the lower Missouri Valley; again from the 18th to 21st, a storm of wide extent, moving eastward somewhat north of the courses pursued by those noted earlier in the month, gave general precipitation over nearly all portions of the country from the Rocky Mountains eastward, heavy rain again falling over the Ohio and middle Mississippi watersheds and extending into the Gulf and Atlantic Coast States and over the Great Lakes. A fourth important rain area having centers of low pressure over Texas and in the valley of the Red River of the North, appeared on the morning of the 25th, and during the remainder of the month rains were frequent over extensive areas from the Great Plains eastward, the falls being particularly heavy in the watersheds of the Ohio and Mississippi Rivers, and over portions of the Gulf States; at Houston, Tex., more than 8 inches occurred from the 24th to 26th.

Anticyclones were usually not so well developed as the cyclones, and passed eastward, as a rule, near the northern border, their influence being most pronounced over the region from the Great Lakes eastward and southeastward.

For the month as a whole, pressure was highest over the Great Lakes and Atlantic Coast States, and lowest in the southern Rocky Mountains and adjacent regions. It was below normal from the middle Plains region northward into the Canadian Provinces, but elsewhere throughout the United States and Canada the average pressure was above normal.

As compared with February just passed, the average pressure was decidedly lower over the great central valleys and in the British northwest.

It was slightly higher than last month over a small area in the Great Lakes region and along the immediate Pacific coast.

Local high winds were of frequent occurrence, as may usually be expected in March, and a number of lives were lost and considerable property damage resulted. The most important periods of damaging winds were on the 13th and 14th, when severe storms of tornadic character swept over portions of Arkansas, Louisiana, Mississippi, Oklahoma, and Tennessee, causing the loss of about 25 lives, injury to about 100, and large property damage; and on the 30th and 31st, when high winds prevailed over extensive areas in the Ohio Valley and Gulf States.

As is usual in March, the prevailing winds varied greatly. They were usually from northerly points over the Great Lakes and to the eastward, from southerly points in the Gulf States and great central valleys and variable elsewhere.

TEMPERATURE.

No important sudden changes of temperature occurred during the month and the daily departures from normal were usually moderate, save for the first few days in portions of the Southwest. On the whole, cool weather continued in the more western districts, particularly during the first half of the month, a condition that has persisted, more or less, in that region since the beginning of the year. On the other hand, generally moderate temperatures persisted in the districts from the Rocky Mountains eastward.

The highest temperatures of the month were usually recorded during the latter half. A warm period, beginning on the Pacific coast about the 20th, gradually moved eastward, reaching in succession the Plains States by the 22d to 23d, the central valleys by the 24th, most eastern districts by the 26th, and the more southern States toward the end of the month. No unusually high temperatures were reported during the month, the maximum observed, 100°, occurring in Texas on the 13th.

The month opened with cold weather prevailing in Texas and portions of adjacent States, the temperature having fallen to or below freezing as far south as Corpus Christi, and the lowest temperatures ever observed in March were reported at a number of points in the southern Plains and adjacent portions of the western mountain regions. The 1st was the coldest day of the month in nearly all districts from the Great Plains westward. the 2d and 3d were the coldest in portions of the central valleys, and the 4th and 5th over the Southern States from Texas eastward. Over the Middle Atlantic States and New England the coldest period of the month was on the 1st and 2d.

Minimum temperatures were below zero in all the western Mountain States and along the entire northern border; the lowest observed, −43°, occurred in the mountains of Wyoming. Temperatures below freezing were reported from some portion of all the States.

For the month, as a whole, the temperature averaged below normal over all districts from the Rocky Mountains westward and in portions of the West Gulf States. Over the districts to the eastward, the temperature averages were mainly above normal, the month being distinctly warm in the upper Mississippi and lower Missouri valleys and thence northward into Canada, where locally the averages were 10° or more above normal.

PRECIPITATION.

In the central valleys and eastern districts, March was generally rainy, the total falls for the month being in excess of the normal over all States from the Great Plains eastward to the Atlantic coast, save in Maine, Florida, and the two Dakotas. In portions of the Ohio and middle Mississippi valleys and generally over the Gulf States, the precipitation was far in excess of the normal, and in some States and sections the fall was the greatest of record for March. In portions of Arizona, Colorado, and generally in the far Northwest, the monthly precipitation was likewise in excess of the normal, but usually to a much less extent.

From the Dakotas southwestward to and including California the month was drier than usual, and similar conditions existed in the Florida peninsula. Monthly amounts in excess of 10 inches were reported from portions of all the Gulf and South Atlantic States and from Kansas and Oklahoma to the States of the Ohio Valley. Amounts from 10 to 15 inches were likewise reported from exposed points in the mountains of the Pacific Coast States.

The heaviest fall for the month, 17 inches, was reported from central Texas, while in the western part of that State there was little or no precipitation. Likewise in California no precipitation occurred over a considerable area in the southeastern part of the State, while in the northern mountain districts amounts in excess of 15 inches were recorded.

SNOWFALL.

The distribution of the monthly snowfall is shown on Chart VIII of this REVIEW. In general, snow was widely distributed, only the more southern districts having none, and at some southern stations it was observed the first time in March for many years.

Fairly heavy falls were received in the upper portions of the Ohio drainage area, and portions of New York and New England had totals for the month of 10 to 15 inches or more. Over most of the interior portions of the country, including the Great Lakes region, the snowfall was mainly less than normal, and that which fell soon melted.

In the western mountain districts the snowfall was mainly near the normal amounts, and on account of continued cool weather there was less melting than usual. As a result the prospects continue good for a plentiful supply of water in most districts where the accumulated snow furnishes the major portion of water required for irrigation and other purposes.

At the end of the month little snow remained on the ground save in northern New York, portions of New England, the region of the Great Lakes, and in the mountain districts of the West.

RELATIVE HUMIDITY.

Like the precipitation, the average relative humidity was generally above normal over the districts from the Rocky Mountains eastward, although in the Appalachian Mountain region and portions of the North Atlantic Coast States there were local deficiencies of considerable degree, and there were also well-marked deficiencies in portions of Texas.

From the Rocky Mountains westward the relative humidity was mainly deficient, but here, too, there were localities having values decidedly in excess of the normal.

Severe local storms.

[The table herewith contains such data as have been received concerning severe local storms that occurred during the month. A more complete statement will appear in the Annual Report of the Chief of Bureau.]

Place.	Date.	Time.	Width of path.	Loss of life.	Value of property destroyed.	Character of storm.	Remarks.	Authority.
			Yards.					
Augusta, Ga. (near)	7	A. m.		6		Wind and rain	Severe general damage. Many persons injured.	The Piedmont (Greenville, S. C.).
Evansdale, N. C.	7	A. m.	300 yards to one-half mile.	1	$40,000-50,000	Tornado	Houses, barns, and other buildings razed; 15 or more persons injured.	Raleigh Times (N. C.).
New York, N. Y.	7	P. m.				Gale	Minor accidents in harbor. Wind velocity, 70 miles.	New York Times. Official U. S. Weather Bureau.
Northern Louisiana	10	A. m.				Wind and rain	Damage confined largely to timber. Some property damage.	Shreveport Times (La.).
Louisiana, Arkansas, Mississippi, and Oklahoma.	13-14			25		Tornadoes and cyclones.	About 100 persons injured and a loss in property damage estimated at thousands of dollars.	New York Herald; Indianapolis Star (Ind.); Commercial Appeal (Tenn.).
Mobile and Cullman Counties, Ala.	14					Tornado	Several injured and much property lost	Official U. S. Weather Bureau.
Giles County, Tenn	14	P. m.			15,000	do	60 buildings damaged and some stock killed; 10 persons injured.	Do.
Petersburg, Tenn	14	P. m.				Wind	School and small buildings damaged	Do.
Clarksville, Tenn	14					Hail	Greenhouses damaged	Do.
Santa Fe, N. Mex	17					Wind	Severe storm over much of Rio Grande Valley. Some damage to buildings.	Do.
Telluride, Colo	17-19					Snow	Wire communication crippled, railroad traffic delayed, roads blocked.	Daily Sentinel (Grand Junction, Colo.).
Laurel and Brookhaven, Miss.	20	A. m.		1		Tornado	Considerable damage to property and some live stock killed. Several persons injured.	Pensacola Journal (Fla.).
Lee County, Ala	20			2		do	Heavy property losses	Do.
Bull Run, Oreg	21	A. m.				Wind and rain	Street-car service discontinued; power service handicapped.	Journal (Portland, Oreg.).
Beaumont, Tex., and vicinity	25	P. m.		3	100,000	Tornado	Damage to property and scores injured	Dallas Morning News (Tex.).
Southern Indiana	29-30					Cyclone	Buildings unroofed and demolished. Telegraph and telephone lines damaged severely.	Evansville Courier (Ind.).
Shreveport, La. (40 miles south of).	30	P. m.			100,000	Wind	140 derricks of the Red River Parish oil field and several buildings wrecked.	Chattanooga Times (Tenn.). Official U. S. Weather Bureau.
Savannah, Tenn	30					do	2 injured and a number of homes and cotton gin damaged.	Chattanooga Times (Tenn.).
Columbus, Ohio, and vicinity	30			1		do	Considerable property loss. Telephone and telegraph poles blown down. Trees uprooted, etc.	Evansville Courier (Ind.). Official U. S. Weather Bureau.
Cincinnati, Ohio	30	P. m.				do	General damage done	Do.
Southern Michigan	30-31					Ice	Heavy damage sustained by telegraph, telephone, and light companies. Car service interrupted; trees down. Damage estimated at several million dollars.	Official U. S. Weather Bureau (Detroit). Free Press (Detroit, Mich.).
Cullman and Lawrence Counties, Ala.	31		50-1,760			Tornado	Several persons injured: 15 residences and 2 business houses damaged. Wire communication interrupted.	Chattanooga Times (Tenn.). Official U. S. Weather Bureau.
Huntsville, Ala. (southwest of).	31	A. m.				do	3 persons injured, 3 houses blown away, power lines down. Northern Alabama towns in darkness for 9 hours.	Chattanooga Times (Tenn.).
Bradley County, Tenn	31	A. m.				do	General damage done	Do.